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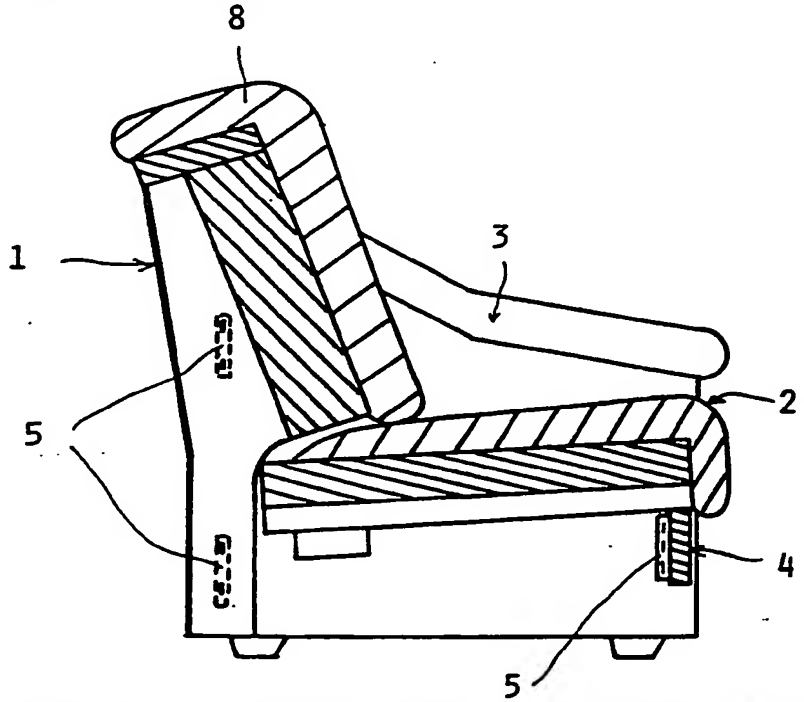
(54) Title: A METHOD FOR MAKING A TRANSPORTATION OR STORAGE PACKAGE



(57) Abstract

The invention relates to a method for forming a transportation and/or storage packaging unit. The body to be packaged is formed of separate at least partially lined sub-assemblies (1, 2, 3, 4), whereby at least a part of the adjacent surfaces of the sub-assemblies (1, 2, 3, 4) comprise mutually locking devices (5), by which the lined sub-assemblies (1, 2, 3, 4) may be mutually interconnected at adjacent sides in connection with disassembling the package. The seams between said sub-assemblies are arranged at locations, where a visible seam in any case naturally would appear in the lining of said body and by the lining and/or cushioning (8) suitably constituting a friction surface preventing relative movement of said sub-assemblies (1, 2, 3, 4).

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A method for making a transportation or storage package

The invention relates to a method for making a transportation or storage package.

In the so called durable goods market it is common that goods are substituted in accordance with fluctuations in fashion. The goods themselves are manufactured where manufacture is cheap and are transported through a longer or shorter chain of intermediary agents to the end user. This may lead to the product moving quite long distances, in the course of which intermediate warehousing is effected in one or more points.

Especially related to furniture there is the problem that the goods is both bulky and irregular in shape, in which case transportation and storage calls for awkward arrangements. It is quite usual for transportation and storage capacity to be utilized below capacity for the reason that the shape of the object creates large empty spaces between the different objects.

The above shortcomings have been solved, in the case of shelf-systems or similar furniture, in such a manner that the pieces of furniture consist of several sub-assemblies which are assembled by means of various screw arrangements. Assembly then often calls for the use of tools and sometimes even for special technical skill. In pieces of furniture of this kind it is widely accepted that seams between sub-assemblies are visible to a greater or lesser extent.

On the other hand, fashion, pertaining to most other kinds of furniture, has been such that the end user has required the piece of furniture to be manufactured as a fixed entity at the manufacturing sites. This relates especially to more valuable and heavy pieces of sitting furniture such as armchairs and especially couches. Especially in the case of leather couches it is required that the couch shows no signs of being as-

sembled from parts, because it is generally assumed that a couch assembled from sub-assemblies would be less durable e. g. in the case that cleaning requires that it be moved within the apartment. Thus there exists a world-wide problem related especially to leather couches in that couches always are manufactured as individual entities, which subsequently are transported with a very low efficiency to the end user. This has for its part led to the fact that it has not been sensible to locate the manufacture of couches to faraway factories.

The object of the present invention is to provide a means whereby the transportation of even durable goods like the above mentioned ones may be arranged in an efficient manner, without the prejudices of the end user and/or persons visiting the end user influencing the use of the product. The further aim of the invention is to provide methods for transporting especially large pieces of furniture, such as couches or the like, whereby one aim is to provide a piece of furniture, that can be arranged for the transportation in an easily and efficiently transportable form, where the share of unnecessary empty space is minimized. Thus one or several transportation packages for the object proper, e. g. a piece of furniture or the like, may comprise parts belonging to the same object body. Alternatively or in addition to the aforementioned the transportation package proper may comprise similar or different parts of several bodies.

The characteristic features of the invention appear from the enclosed claims. Thus it is a characteristic feature of the present invention that the body to be packaged is formed from separate parts of an entity, said parts being sub-assemblies connecting with each other, whereby interconnecting locking devices are arranged at adjacent faces of the sub-assemblies at which points the sub-assemblies may, at adjacent sides, be disconnected from each other for the purpose of transportation and respectively be connected with each other in side-by-side relation in connection with disassembling the package, the

boundaries between sub-assemblies being situated at points where there would be a visible seam in the lining in any case, and in such a manner, that the lining suitably provides a friction surface inhibiting the relative motion between sub-assemblies.

Typically the invention relates to a valuable piece of furniture, such as a lined leather couch or similar, composed of separate sub-assemblies. Adjacent interconnecting surfaces of said sub-assemblies comprise male and female locking devices, respectively. Further, each sub-assembly comprises a lining or cushioning, which extends over at least a part of said sub-assembly, said lining or cushioning at the boundaries between sub-assemblies extending inwards towards the supporting structure of the furniture. According to one advantageous embodiment of the invention the locking devices are arranged in such a way that the sub-assemblies lock into each other in response to a mutual movement towards each other and a following mutual parallel movement essentially in the direction of the contact surfaces, whereby locking means preferably are arranged in connection with the locking devices or in their vicinity to prevent accidental mutual parallel movement in the opposite direction.

In the following the invention is described in more detail with reference to the attached drawings, in which the embodiment to be shown relates to a couch or a similar piece of furniture, wherein

Fig 1 schematically shows an embodiment of the invention as a side section,

Fig 2 shows the embodiment according to Fig 1 seen from behind in a stage when the package of the piece of furniture is opened and the assembly has commenced,

Fig 3 shows the same embodiment seen from the front,

Fig 4 shows the piece of furniture almost completely assembled,

Fig 5 shows a section, in exaggerated dimensions, of a locking device according to one embodiment of the invention, and Fig 6 shows an alternative locking.

The body shown in figures 1...4 is, as may be seen especially in figure 4, a unit that is very cumbersome to transport in its assembled form, thus leaving a considerable amount of useless space in a load comprising several similar bodies. The concept of the present invention derives from the realization that the body prior to packaging, advantageously already during the manufacturing process, may be formed from separate sub-assemblies that after transportation and/or storage may be locked into each other. Thus in Fig 1 a side projection of a piece of furniture of the couch type is shown as an example wherein the back rest 1, the seat part 2, the arm rests 3, 3a and the front board 4 of the body to be packed all are separate in the packaging stage and as such form sub-assemblies from which the assembled body, in the example shown as a couch, is formed.

The piece of furniture described above is thus formed from sub-assemblies which are suitably detached from each other for the duration of transportation or storage. Thus units that can be transported and stored efficiently as is the aim of the invention may be formed from said sub-assemblies in a manner known per se. After transportation or storage the aforementioned sub-assemblies are attached to each other by means of mutually cooperating locking devices 5 located in each sub-assembly. According to Fig 2 said locking devices 5 advantageously comprise a female element 6 on one hand and a male element 7 on the other hand. The above mentioned locking devices 5 function advantageously in such a manner that the male element 7 of each first sub-assembly is pushed into the corresponding female element 6 of the adjacent sub-assembly connecting therewith. After this the sub-assemblies 1, 2, 3, 4 are moved mutually laterally, suitably vertically in such a manner that the advantageously L-formed outwards extending

locking tongue situated in the male element 7 grips behind the edge defining the groove of the female element 6, whereby an initial locking takes place.

The method according to the invention is especially suitable to be used in connection with the transportation and storage of bodies wherein the assembled body and hence also at least part of the sub-assemblies forming it, comprise a rather soft lining or cushioning 8. In such cases the seams between the sub-assemblies may be located in places, where seams in the lining or cushioning would naturally occur in the assembled body.

In pieces of sitting furniture, such as an armchair or a couch the said seams would usually be situated between the back rest 1 and the arm rests 3, 3a. Furthermore the cushioning of the sitting part 2 usually forms a separate entity in which case this forms a natural seam between said sub-assembly 2 and the other sub-assemblies 1, 3, 3a, 4. Furthermore, in e. g. leather couches a seam simultaneously may be formed between the leather lining of the front panel and the arm rests 3, 3a for practical reasons, in which case this seam is used as a dividing seam between sub-assemblies 3, 3a, 2 and 4 according to the invention.

In the case when the lining is formed from cushioning material, so called stuffing 8, this stuffing can be used advantageously also in such manner that it in itself forms a friction surface between said sub-assemblies said friction surfaces resisting the relative movement of the sub-assemblies and thus functioning to prevent any accidental opening of the locking devices.

From Fig 3 may be seen that the sitting part 2 forms an entity of its own in a very natural manner. In one embodiment the sitting part 2 has its own supporting legs 9. In order to effect a compact transportation package said legs are

advantageously hinged to facilitate turning them on one hand parallel to the sitting part and, on the other hand, downward, perpendicular to the floor. In another embodiment detachable support structures for the sitting part 2 have been arranged between the back rest 1 and the front panel 4. Correspondingly it may be seen from Fig 4 that the front panel 4 suitably forms the last sub-assembly to be attached when assembling, and correspondingly the first sub-assembly to be detached when disassembling.

In most cases the primary locking described above will be sufficient, but especially in the case of heavy pieces of furniture it is sometimes advantageous that an accidental opening movement in the opposite direction is prevented. Thus the joints locked in the primary locking of the piece of furniture do not open even in the case when the piece of furniture is lifted from the front panel 4. To achieve this a locking mechanism, which finally prevents accidental opening of the locking through requiring a separate action for opening the locking, is arranged in connection with sub-assemblies 1 and/or 2 and/or 3 and/or 4, either separately or in connection with the locking devices 5. For inventories, such as furniture or the like it is especially important that the front panel 4 connects to the entity in a locked manner, because when cleaning or moving inventories this is the place which is most commonly handled.

Fig. 5 illustrates one locking arrangement in which the final interlocking of the sub-assemblies is accomplished through driving a pushing device in one sub-assembly into a hole arranged in another sub-assembly 3, 3a or in the locking device 5, 6, whereby the relative movement between said sub-assemblies is prevented and thus eliminating any accidental opening of the locking device 5. The pushing device may either be a loose element or it may be mounted in a sliding manner to the sub-assembly 4. The pushing device advantageously comprises a pin or the like. If the need later arises to dis-

assemble the inventory into sub-assemblies the above locking arrangement is easy to open.

An especially advantageous embodiment of the invention is shown in Fig. 6 illustrating a spring loaded locking latch 11 along which another sub-assembly (the front panel 4 in said Fig. 6) or a part thereof slides in the primary locking stage, in which case the final locking automatically will be accomplished when the locking devices 5 have moved sufficiently relative to each other for achieving a primary locking and the locking latch 11 has reached its counterpart 12. This automatic locking arrangement is advantageous in such a way that the final locking does not require any special action, and thus does not accidentally remain undone. A locking latch like this can suitably be constructionally incorporated in connecting with the locking device 5.

The entire packaging unit described above thus comprises sub-assemblies of the body to be packaged accordingly and the unit may easily be assembled into a rigid structure, e. g. a couch, without the use of tools. On the other hand the same packaging unit comprises, at the packaging stage only sub-assemblies having a shape which allows them to be stacked very tightly. Thus the packaging unit formed in accordance with the invention may be transported advantageously even over long distances, in which case the manufacturing location may be chosen considering other factors than transportation. In the same manner storing these sub-assemblies is significantly cheaper than storing assembled bodies, often of complicated shape. By arrangements according to the invention a storage efficiency that is doubled in comparison to known storage methods of bodies of this type may easily be achieved.

The advantages of the invention are especially evident in case the assembled piece of furniture is very large. Thus the piece of furniture may readily be disassembled into parts which are easily carried and which may easily be managed through narrow

doors, staircases and the like.

Claims

1. A method for forming a transportation and/or storage packaging unit, wherein the body to be packaged is formed of separate at least partially lined sub-assemblies (1, 2, 3, 4), to be mutually interconnected to form the entity, whereby at least a part of the adjacent surfaces of the sub-assemblies (1, 2, 3, 4) comprise mutually locking devices (5), by which the lined sub-assemblies (1, 2, 3, 4) may be mutually interconnected at adjacent sides in connection with disassembling the package c h a r a c t e r i z e d by arranging the seams between said sub-assemblies at locations, where a visible seam in any case naturally would appear in the lining of said body and by the lining and/or cushioning (8) suitably constituting a friction surface preventing relative movement of said sub-assemblies (1, 2, 3, 4).

2. A method as defined in claim 1, c h a r a c t e r i z e d by said locking devices (5) being formed by male (7), and correspondingly, female elements (6) which are connected by a pushing action and attached to corresponding interconnecting sub-assemblies (1, 2, 3, 4).

3. A method as defined in claims 1 or 2, c h a r a c t e - r i z e d by assembling and disassembling said sub-assemblies by bringing said sub-assemblies (1, 2, 3, 4) together and correspondingly away from each other with said male (7) and correspondingly female locking elements (6) opposite each other, whereby a primary locking is accomplished by moving said sub-assemblies (1, 2, 3, 4) close to each other mutually, mainly vertically, said locking devices being aligned opposite-adjacent each other.

4. A method as defined in any one of claims 1 to 3, c h a - r a c t e r i z e d by preventing any mutual movements of the locking bodies (5, 6, 7) into an open position by separate locking means.

5. A method as defined in claim 4, c h a r a c t e r i z e d by using as a locking device a separate locking pin (10) or one connected to one of the sub-assemblies, which locking pin (10) is pushed into a hole, adapted therefor and being significantly close in size to the locking pin (10) in such a manner that at least in the normal assembled using situation the vertical unlocking motion of the foremost sub-assembly (4) is prevented.

6. A method as defined in claim 4, c h a r a c t e r i z e d by using a spring arrangement (11) and an advantageously cooperating counterpart (12) for the locking of the locking devices (5), whereby said locking arrangement (11) automatically locks the locking device (5) when a suitable primary locking has been reached.

7. A method as defined in any of the claims 1 to 6, c h a r a c t e r i z e d by connecting said sub-assemblies (1, 2, 3, 4) in such a manner that the body that is formed is a significantly rigid furniture entity.

8. A method as defined in any of the claims 1 to 7, c h a r a c t e r i z e d by the rigid furniture entity being a cushioned couch or a similar piece of furniture.

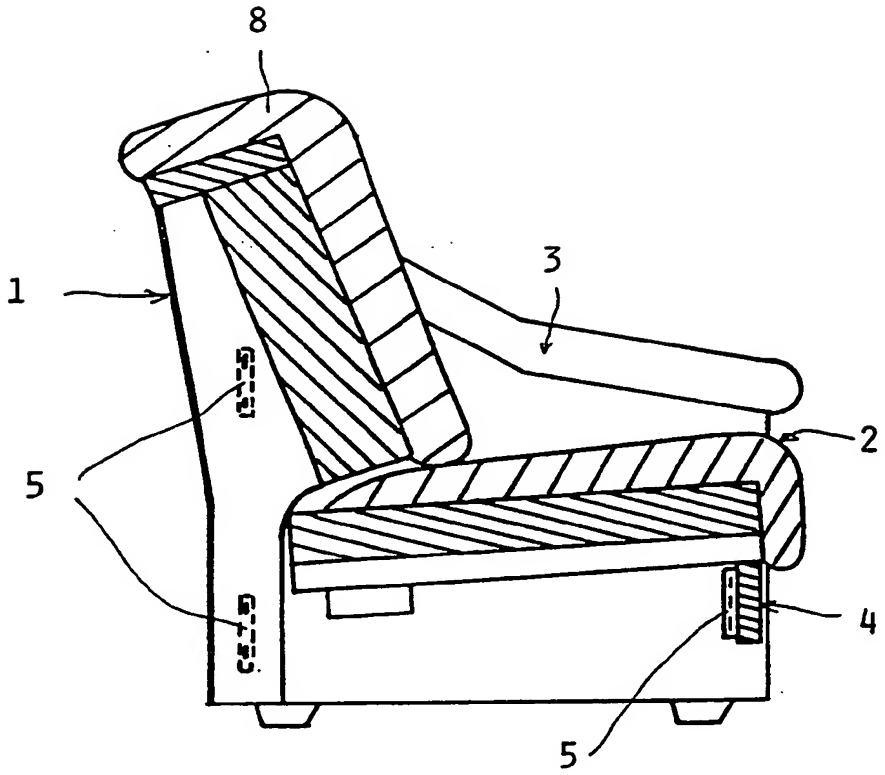


FIG 1

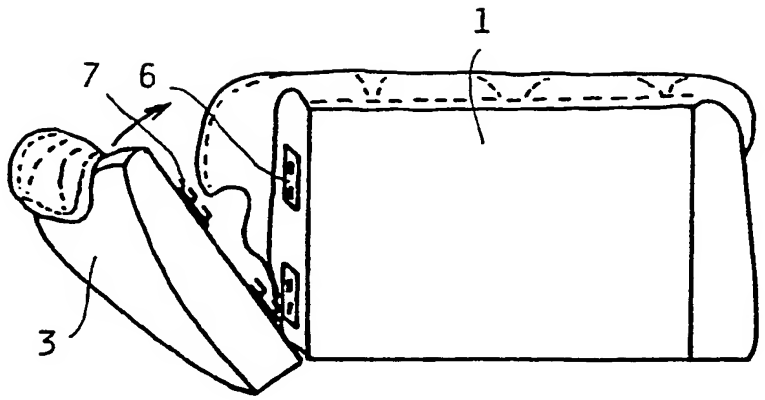


FIG 2

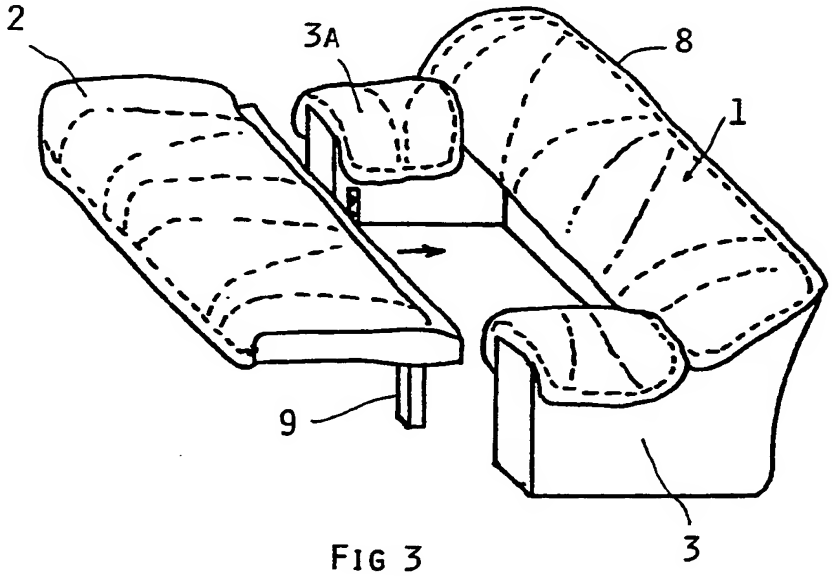
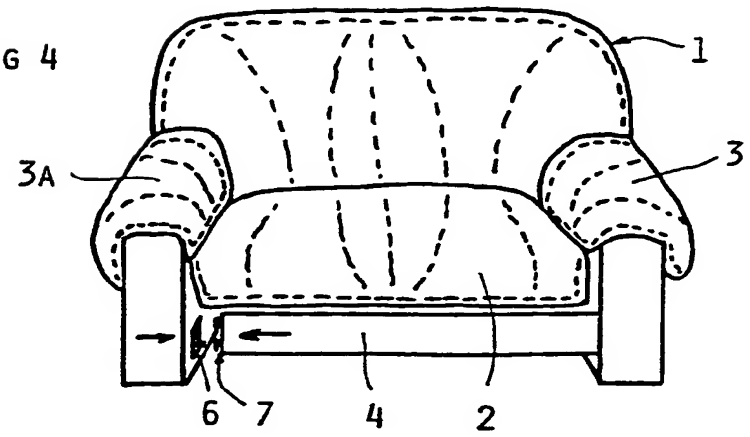


FIG 3

FIG 4



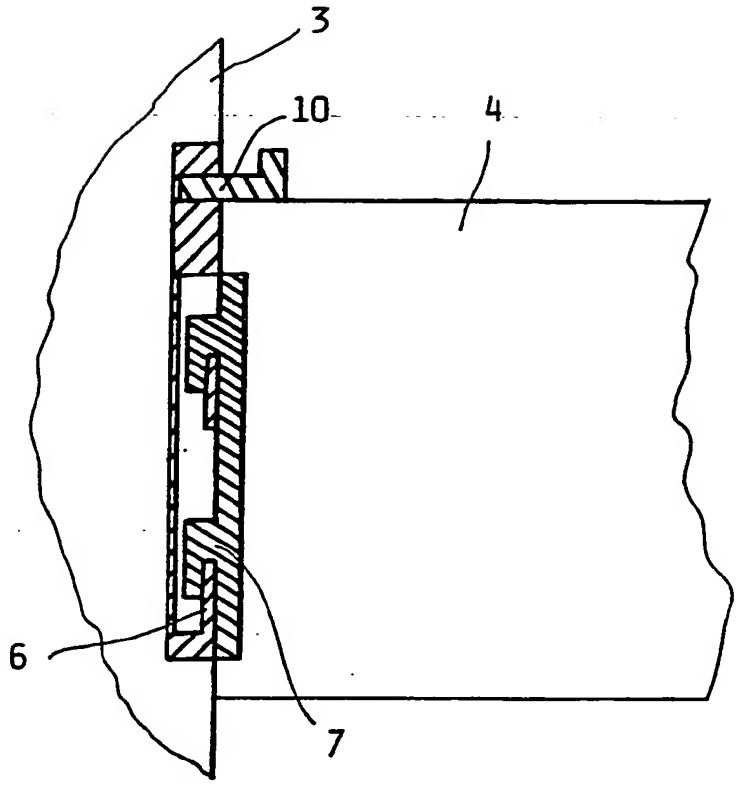


FIG 5

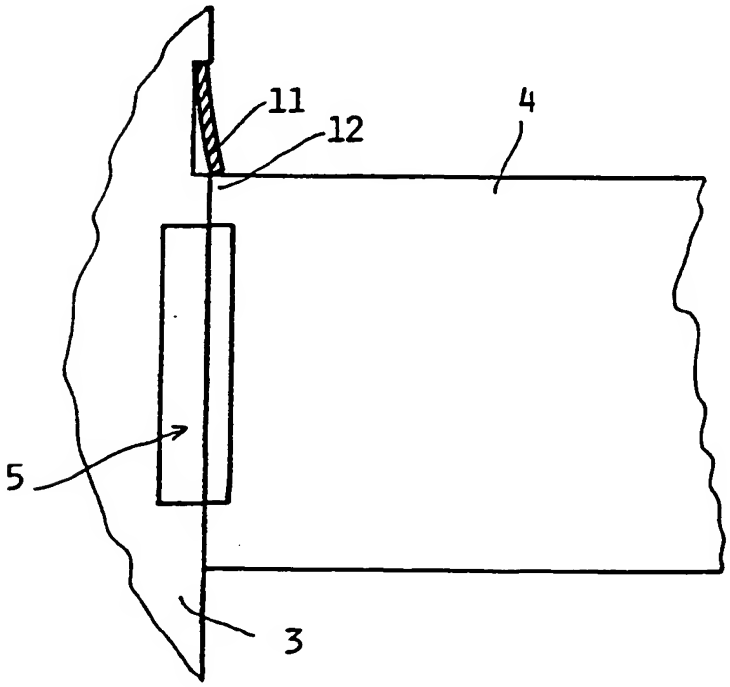


FIG 6

INTERNATIONAL SEARCH REPORT

International Application No PCT/FI 91/00202

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC5: A 47 C 4/02

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
IPC5	A 47 C

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched[8]

SE,DK,FI,NO classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category *	Citation of Document,[11] with indication, where appropriate, of the relevant passages[12]	Relevant to Claim No.[13]
X	FI, C, 22094 (MADRASSFABRIKEN DUX AKTIEBOLAG) 17 November 1947, see page 1, line 1 - line 22; page 3, line 3 - line 15 --	1-4,6-8
X	US, A, 4165902 (EHRLICH) 28 August 1979, see abstract; figure 9 --	1-3,7-8
A	SE, B, 355934 (AB WIMO MÖBELFABRIK) 14 May 1973, see the whole document --	1-8
A	DE, C, 365461 (SEMBUSTOWERK G.M.B.H.) 15 December 1922, see the whole document --	1-8

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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
4th September 1991	1991 -09- 30
International Searching Authority	**Signature of Authorized Officer**
SWEDISH PATENT OFFICE	Björn Salén

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ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO.PCT/FI 91/00202

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the Swedish Patent Office EDP file on 91-07-31 The Swedish Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FI-C- 22094	47-11-17	NONE	
US-A- 4165902	79-08-28	CA-A- 1095823	81-02-17
		DE-A- 2900117	79-07-12
		FR-A- 2413067	79-07-27
		GB-A-B- 2012572	79-08-01
		JP-A- 54115970	79-09-08
		SE-A- 7813398	79-07-04
SE-B- 355934	73-05-14	NONE	
DE-C- 365461	22-12-15	NONE	